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Herpetofauna of the University of Wisconsin-Milwaukee Field Station, (Saukville, Wisconsin): A Preliminary Report . . .	Joshua M. Kapfer	45
Book Review: <i>Venomous Snakes of the World</i> by Mark O'Shea	Harlan D. Walley and Theresa L. Wusterbarth	49
Vietnam Revisited: A Cobra in Combat	William H. Gehrmann	50
Notes on the Reproductive Biology of the Smooth Knob-tail Gecko, <i>Nephurus laevisissimus</i> (Squamata: Gekkonidae), from Western Australia	Stephen R. Goldberg	51
HerPET-POURRI	Ellin Beltz	53
Big Sand Mound Trip—September 10, 2005	Michelle Nash	56
Herpetology 2006		58
Unofficial Minutes of the CHS Board Meeting, February 10, 2006		61
Advertisements		62
News and Announcements: 2006 CHS Grant Recipients		63

Cover: *Gastrotheca aureomaculata*, holotype. Drawing from *Frogs of Colombia* by Doris M. Cochran and Coleman J. Goin, United States National Museum Bulletin 288, 1970.

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Herpetofauna of the University of Wisconsin-Milwaukee Field Station, (Saukville, Wisconsin): A Preliminary Report

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Abstract

The University of Wisconsin-Milwaukee Field Station contains a rich assemblage of amphibian and reptile species, which are an under-utilized resource by the university. The last report of the amphibian and reptile species present at the field station was published nearly two decades ago and did not include detailed information regarding physical characteristics of the species discovered or habitat descriptions of where they were encountered. I report the result of two days of surveying for amphibians and reptiles during a field herpetology course taught at the field station 4–5 June 2004. These surveys were conducted using accepted methods (i.e., search and seizure, cover objects, drift fences and turtle hoop traps) and revealed a diverse assemblage of amphibians and reptiles. Although it was by no means an exhaustive surveying effort, this report will hopefully set the groundwork for future research at the field station on these species.

Introduction

The University of Wisconsin-Milwaukee Field Station (UWMFS) is located in the Cedarburg Bog and Cedarburg Beech Woods State Natural Areas, near Saukville, Ozaukee County, Wisconsin. This 810-hectare habitat is the largest peat bog in southern Wisconsin (Reinartz, 1985; Weise et al., 2004). State acquisition of the Cedarburg bog began in 1946 (on the recommendation of Aldo Leopold) and it is now jointly owned by the Wisconsin Department of Natural Resources and the University of Wisconsin (Reinartz, 1985; Weise et al., 2004). The University of Wisconsin purchased the Cedarburg Beech Woods in 1964, which is now managed by the University of Wisconsin-Milwaukee Field Station (Weise et al., 2004). The field station is used both for conducting scientific research and for holding educational workshops for students and professionals in the field of wildlife ecology.

Although the habitats on the field station grounds and the adjacent state natural areas are suitable for sustaining adequate populations of several different amphibian and reptile species, very little research has been conducted in this regard. The only existing publication that discusses the herpetofauna of the field station grounds (Reinartz, 1986) focuses primarily on vegetation communities. That report does not describe habitats where species were encountered, methods used for surveying, or means used to identify specimens as to species or subspecies. (It should be noted, however, that both Reinartz [1985] and Reinartz [1986] are invaluable resources for information regarding the vegetation communities of the area).

The objectives of this survey were to update the current list of amphibian and reptile species present on the field station's grounds and adjacent habitats, while creating a standard methodology for similar surveys that may be conducted in the future. To my knowledge, this is the first attempt to publish quantifiable survey results for the site (aside from a general species list), to set up a standard for amphibian and reptile survey methods that can be repeated in subsequent years, and

to begin an ongoing monitoring scheme for amphibian and reptiles species present on the UWMFS grounds, particularly important considering the presence of, at least, one state Endangered reptile on the property.

Methods

Habitat Description—The UWMFS grounds include a diverse assemblage of habitats. For ease of description, I will use the field station's laboratory as a central point and will describe all habitats in relation to this building. Because it is close to Cedarburg Bog, much of the field station's grounds to the south, east and northeast comprise a peat bog (for a detailed description of the floral communities of the Cedarburg Bog, see Reinartz [1985]). The property immediately west and northwest of the field station laboratory consists mostly of dry/mesic, long grass meadow and old fields. These are bordered by wet meadow/marsh located approximately 130 m southwest of the laboratory (past the dry/mesic meadow) and immediately east. Various sedges (family Cyperaceae) are the dominant species in these marsh habitats. Roughly 100 m north of the laboratory is a pile of debris consisting of heaps of wood and plastic/metal scraps. This debris is 40 m from an old farmhouse and adjacent abandoned foundation belonging to a previously standing structure. To the far west and southwest is a late succession hardwood forest dominated by birch, ash and maple, which also contains a series of small ephemeral wetlands. In the southern portion of the Cedarburg Bog and approximately 1 km from the field station laboratory is Mud Lake. This shallow (137 cm) lake occupies 67 hectares of the Cedarburg Bog (Reinartz, 1985). Its benthic area is comprised mostly of a thick layer of silty muck and its periphery contains dense areas (10–20 m) of emergent aquatic vegetation (for a more descriptive account of Mud Lake's floral communities, see Reinartz [1985]). It is fed by a stream that runs southwest through the bog before entering the lake.

Survey Methods Employed and Construction—The most

commonly utilized survey method during this study was the “search and seizure” technique described by Karns (1986). This entailed students spreading out in a large line, walking randomly through a given habitat, and capturing any amphibian or reptile species found. The method was employed often in the long grass meadow habitat as well as in the hardwood forest and while moving between habitat types as a group. A modified version of this method was also used to survey for amphibians near the wooded ephemeral wetlands — students spread out and walked through the habitat, flipping rotten logs and overturning leaf litter.

Cover objects are commonly used for reptile surveys (Busby and Parmelee, 1996; Grant et al., 1992; Karns, 1986; Parmelee and Fitch, 1995). This method was also employed here. Although cover objects can be made from many different materials (e.g., corrugated metal, old shingles, secured plastic tarp), we used pieces of plywood cut into approximately 91×91 cm sections. These cover objects were then placed in two locations on UWMFS property in two different arrays at least 24 hours prior to use. Ten cover objects were placed 110 m west of the laboratory in a line that followed the contour of a grassy hill. The objects were placed at the base of the hill where the drier grassy slope met the very edge of the emergent aquatic vegetation associated with the adjacent marsh. The second array of cover objects consisted of boards arranged in a four board by four board grid with each board approximately five meters from adjacent ones. This grid was placed within the open long grass meadow located 200 m northwest of the laboratory. Cover objects were flipped and checked for amphibians and reptiles two to three times daily during the course of the workshop.

Drift fences are employed frequently in herpetofaunal surveys (Busby and Parmelee, 1996; Grant et al., 1992; Karns, 1986; Vogt and Hine, 1982). They are relatively easy to construct and, when properly erected, have been shown to be an effective way of capturing many species of amphibians and reptiles. Although there are several different orientations in which drift fences can be positioned (see Karns [1986] and Vogt and Hine [1982] for review), we incorporated two 10 m sections of aluminum (approximately 50 cm high) that were placed in an “X” orientation. Drift fences were stabilized by burying them approximately 20 cm into the soil and pounding small metal stakes into the earth along their sides. For each drift fence array, pitfall traps (in the form of buried coffee cans) were placed at the end of aluminum sections, and funnel traps (made from plastic window screen wrapped around oil funnels; see Karns [1986]) were placed in the center of either side of each aluminum section. Both drift fences were constructed on the field station’s grounds, one in the long grass meadow located approximately 150 m west of the laboratory and the other approximately 700 m west of the laboratory near the ephemeral wetlands in the hardwood forest. Drift fences were in place approximately 24 hours prior to use.

An efficient way to survey for turtles is through the use of hoop nets (Karns, 1986). These traps can easily be set in any water body and baited with punctured sardine or tuna fish cans to determine the presence of turtle species (please note that

before incorporating hoop nets into a survey, one must first contact the appropriate Department of Natural Resources officials to gain permission and determine which hoop nets are acceptable to use on the water body being surveyed). Two hoop nets were placed on the north shore of Mud Lake roughly 10 m apart. Care was taken to insure that the nets were not completely submerged so that any captured turtles had access to air and would not drown.

Frog call surveys have been incorporated in past research projects regarding breeding anurans (e.g., Mossman et al., 1998). This has been deemed an acceptable way of creating a species list of breeding amphibians present within a given area and was utilized during this survey. On one evening surveyors hiked along a floating wooden “boardwalk” extending into the Cedarburg Bog and listened to calling anurans for 1.5 hours.

Morphological Data Collected on Captured Individuals —
All individuals of all species captured during this survey (with

Table 1. Amphibian specimens encountered. Entries under size are snout-to-rump lengths for anurans, snout-to-vent lengths for salamanders. Habitat codes: WEW = woodland ephemeral wetland (hardwood); OM = open marsh with adjacent long grass meadow; ML = Mud Lake (emergent aquatic vegetation)

Species	Size (mm)	Weight (g)	Habitat
<i>Ambystoma laterale</i>	62	5	WEW
<i>Ambystoma laterale</i>	44	7	WEW
<i>Ambystoma laterale</i>	55	4	WEW
<i>Ambystoma laterale</i>	60	5	WEW
<i>Ambystoma laterale</i>	66	5	WEW
<i>Ambystoma laterale</i>	65	7	WEW
<i>Ambystoma laterale</i>	78	10	WEW
<i>Ambystoma laterale</i>	48	2	WEW
<i>Ambystoma laterale</i>	82	8	WEW
<i>Bufo americanus</i>	46	15	WEW
<i>Hyla versicolor</i> *	N/A	N/A	OM
<i>Pseudacris crucifer</i>	25	3	WEW
<i>Pseudacris crucifer</i>	22	< 1	WEW
<i>Rana clamitans</i>	N/A	N/A	ML
<i>Rana pipiens</i>	N/A	N/A	OM
<i>Rana sylvatica</i>	44	3	WEW
<i>Rana sylvatica</i>	51	12	WEW
<i>Rana sylvatica</i>	43.5	2	WEW
<i>Rana sylvatica</i>	48	2	WEW
<i>Rana sylvatica</i>	46	10	WEW
<i>Rana sylvatica</i>	40	7	WEW
<i>Rana sylvatica</i>	50	8	WEW

* Only heard during calling surveys, not captured.

Table 2. Reptile specimens encountered. Entries under size are snout-to-vent lengths for snakes and carapace lengths for turtles. Habitat codes: GM = grassy meadow; JP = junk pile; ML = Mud Lake.

Species	Size (cm)	Weight (g)	Habitat
<i>Lampropeltis triangulum</i> *	61.0	116	GM
<i>Lampropeltis triangulum</i> *	67.5	168	GM
<i>Thamnophis butleri</i> *	36.2	42	JP
<i>Thamnophis butleri</i>	N/A	N/A	JP
<i>Thamnophis sirtalis</i> *	47.6	65	GM
<i>Thamnophis sirtalis</i> *	39.3	40	GM
<i>Chrysemys picta marginata</i> ♀	10.8	125	ML
<i>Chrysemys picta marginata</i> ♀	12.0	172	ML
<i>Chrysemys picta marginata</i> ♂	10.4	118	ML

* Gravid female

few exceptions) were weighed (via Pesola® drop scale) and measured (snout-to-vent length in snakes and salamanders, snout-to-rump length in anurans, and carapace length in turtles). All milksnakes (*Lampropeltis triangulum*) and Butler’s gartersnakes (*Thamnophis butleri*) encountered were implanted with Passive Integrated Transponder (PIT) microchips for identification in subsequent years. Furthermore, sex was determined in all captured snakes (via probe) and turtles (via morphological characteristics).

Habitat Data Collected—Macrohabitat (e.g., hardwood forest, long grass meadow, etc.) and microhabitat data (e.g., under birch log near ephemeral wetland) were recorded for each captured amphibian or reptile. Surface temperature, ground temperature, and humidity were also recorded in several instances.

Results

Aside from species heard during frog calling surveys, only individuals that were captured and identified are listed. Most of the amphibian and reptile species encountered during this study were on the Cedarburg Beech Woods property, managed by the UW-Milwaukee Field Station, the exception being one anuran species (discussed below).

Amphibians—The list of amphibian species encountered on the field station grounds includes six anurans and one caudate of varying sizes (Table 1). Amphibians were most commonly encountered under rotting vegetation and leaf litter near the ephemeral wetlands located in the hardwood forest. Two species (*Hyla versicolor* and *Rana pipiens*) were encountered in the open marsh habitats located to the southwest and east of the laboratory and one species (*Rana clamitans*) was heard calling in the Mud Lake area. All amphibians were captured using “search and seizure” surveying methods.

Reptiles—The list of reptile species encountered includes three species of serpent and one species of chelonian (Table 2).

Table 3. Reptile and amphibian species listed by Reinartz (1986) from the Cedarburg Bog State Natural Area.

Reptile species	Amphibian species
<i>Diadophis punctatus</i>	<i>Ambystoma laterale</i> *
<i>Lampropeltis triangulum</i> *	<i>Ambystoma tigrinum</i>
<i>Storeria dekayi</i>	<i>Notophthalmus viridescens</i>
<i>Storeria occipitomaculata</i>	<i>Bufo americanus</i>
<i>Thamnophis sirtalis</i> *	<i>Hyla versicolor</i> *
<i>Chelydra serpentina</i>	<i>Pseudacris crucifer</i> *
<i>Chrysemys picta</i> *	<i>Pseudacris triseriata</i>
<i>Emydoidea blandingii</i>	<i>Rana clamitans</i> *
	<i>Rana pipiens</i> *
	<i>Rana sylvatica</i> *

* Indicates species found in the 2004 surveys.

The snakes were mostly encountered in the grassy areas immediately adjacent to the laboratory and in the piles of debris located to the southwest and north of the laboratory during “search and seizure” and cover board surveys. Two milk-snakes were found under the same cover object (28°C surface temperature, 53% humidity). This cover object was a piece of plywood that had been placed there several years prior for a different study and was thus incorporated into our cover board arrays. The same was true of one common garter snake (*Thamnophis sirtalis*), while the other common garter snake was found in the long grass during search and seizure surveys. A third milksnake (male, SVL: 64.2 cm, Weight: 120 g) was captured along a road near an agricultural field on June 4 by one of the students after class. Because it was not encountered on the field station’s grounds, it was not included in the total count for that species. All turtles were captured in traps set at Mud Lake.

Discussion

Comparison of Current Surveys with Past Reports—Of the 18 species reported by Reinartz (1986), 10 were found (approx. 55%; Table 3). A new species, the state Endangered Butler’s garter snake (*Thamnophis butleri*) was added to the list of those existing at the field station. I believe that most of the species listed in this past publication (that we did not encounter) still exist in the vicinity, but are not as visible during the time of year when the 2004 surveys took place. The chorus frog (*Pseudacris triseriata*) is a good example of a species that is more commonly encountered in March, April and May when breeding in Wisconsin (Vogt, 1981). In addition, in other locations, I have only encountered red-bellied snakes (*Storeria occipitomaculata*) under cover objects in May and June, although it is surely possible that they can be found in such a way later in the summer.

Reinartz (1986) also reported the ringneck snake (*Diadophis punctatus*), but did not have access to the data necessary to designate subspecies. Based on the *Wisconsin Herpetological*

Atlas (Casper, 1996), the subspecies found in the area of the surveys is most likely the northern ringneck snake (*D. p. edwardsii*). Because of its fossorial habits and secretive nature, it was not encountered in 2004 and I hope it will be uncovered in subsequent years with increased intensity of surveying incorporated.

Reinartz (1986) did not report which subspecies of painted turtle is found in the area (i.e., *Chrysemys picta belli*, or *C. p. marginata*). We found definitive evidence that *C. p. marginata* exists in Mud Lake, but I believe that it is still possible for *C. p. belli* to be found there in future years.

It should also be noted that earlier in the year, a juvenile Blanding's turtle (*Emydoidea blandingii*) was seen on the field station's grounds, which confirms that this state Threatened species is still present there. However, it was not included in our surveying totals.

Reinartz (1986) listed the treefrog as *Hyla* sp., and did not have the means to determine whether the gray treefrog (*H. versicolor*), Cope's gray treefrog (*H. chrysoscelis*), or both existed at the Cedarburg Bog. During our surveys in 2004, we heard only male *H. versicolor* calling. Because Vogt (1981) does not believe that these two species will often co-exist in Wisconsin and I have never previously encountered both in the same water body, I would tentatively suggest that *H. chrysoscelis* is not found in the area immediately adjacent to the field station.

I am confident that all other missing species (Table 3) will be found in future surveys.

Comparison of Surveying Techniques — During this workshop, the most effective surveying technique employed (aside from "search and seizure") was the use of cover objects. However, only cover boards that had been in place for over a year, with no vegetation and moist soil underneath, were productive. This is not in accordance with what Parmelee and Fitch (1995) discovered: that age of cover objects and the substrate beneath them were not significant factors determining their success as amphibian and reptiles surveying devices. Our sample sizes at this time are too small to make statistical analysis worthwhile. Metal cover objects were not used, as it was determined that most surveys would be performed during the

hotter parts of the day, when metal cover objects have been found to be less productive (Parmelee and Fitch, 1995). Turtle traps were also effective, however, they were only productive during the second day.

No species were captured in drift fences (aside from one *Ambystoma laterale* that was captured in a funnel trap the morning before the official surveys began). In subsequent surveying years, new drift fence locations and orientations will be utilized in an attempt to increase capture rates.

It comes as little surprise that all of the snakes encountered were gravid females. Because the surveys occurred at the time of year when gravid females of most species are attempting to raise their body temperatures to assist in embryo development, I expected to find more females than males. While this does create a collection bias (female snakes at this time are more "catchable" than males) such biases are probably only detrimental if population sizes are being estimated, rather than maintaining a quantifiable species list (which is the current purpose of our surveys).

Future Goals — I intend to continue these surveys in a similar fashion over the next several years, making adjustments to surveying regimens when appropriate. The purpose is to create a more thorough species list, as well as a description of the preferred habitat for each species. In addition, continuing the surveys in subsequent years will increase sample sizes, which may make future statistical analyses possible on: 1) efficiency of surveying techniques, 2) population sizes, and 3) preferred habitat by a species. I also hope that some day others will continue this endeavor, as the herpetofauna at this academic field station are an underutilized resource.

Acknowledgments

I acknowledge Lou Nelson (UW-M Field Station) for construction and placement of drift fences and cover objects. I also thank Cindy Boetcher, Gretchen Meyer and Jim Reinartz (UW-M Field Station) for logistical assistance in acquiring workshop related materials and supplies. Jim Coggins (UW-Milwaukee) reviewed an earlier draft of this manuscript. Finally, I thank the workshop attendees for their help in conducting surveys.

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Book Review: *Venomous Snakes of the World* by Mark O'Shea. 2005. 160 pp. Princeton University Press, Princeton, New Jersey. ISBN 0-691-12436-1. Cloth. \$29.95

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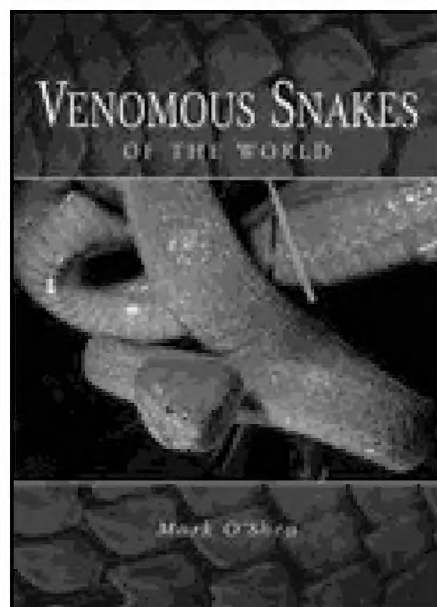
Why are we not surprised that the author would dedicate this book to Haje, his favorite Egyptian cobra, who had been his TV co-star for 12 years on his reptile-hunting adventure shows in the United Kingdom?

The foreword by David A. Warrell provides a brief and enlightening sketch of Mark's adventurous life. The introduction is brief, followed by a three-page summary of "external integument," "internal organs," "sense organs" and "jaws, teeth and fangs" of venomous snakes.

The following chapters cover venomous snake diversity and distribution, snake venoms and their actions, seasnake adaptations, conservation, and a brief review of venomous lizards.

The venomous snakes are broken down into geographical regions: the Americas, which includes both North and South American species; Eurasia; Africa; Tropical Asia; Australasia; and the Oceans, covering the sea kraits and true seasnakes.

The author has been bitten many times during his numerous travels throughout the world studying venomous snakes. A few of the snakes mentioned in this regard include the copperhead (*Agkistrodon contortrix*), Mexican cantil (*Agkistrodon bilineatus*), timber rattlesnake (*Crotalus horridus*), South American rattlesnake (*Crotalus durissus*), Bibron's stiletto snake (*Atractaspis bibronii*), Sunda Island pitviper (*Crypt-*



elytrops insularis), and lesser black whipsnake (*Demansia vestigiata*), along with several species of cobras having sprayed venom into one or both eyes. The latter species include the rinkhals (*Hemachatus haemachatus*) and the Chinese cobra (*Naja atra*). In both cases the author had no major damage due to taking immediate steps by thoroughly washing the eye with water for several hours. His worst snakebite was from a timber rattlesnake (*Crotalus horridus*) which required a nine-day stay in the hospital. The author also relates an anecdotal account of three snake handlers having been killed by the same black mamba (*Dendroaspis polylepis*), which bit all of them through the snake sack.

The highlight of this book is the exceptional photography found throughout. All of the snakes are photographed in their natural environments except for two preserved specimens: on page 134, the spotted forest snake (*Toxicocalamus spilolepidotus*), known from only two specimens from Papua New Guinea; and on page 136, the Bougainville coralsnake (*Parapisto-calamus hedigeri*), which is believed to be most closely related to American or Asian coralsnakes, and possibly will need reclassification into a new subfamily. The author mentions that the Melanesian area is in need of extensive research.

Anyone having attended the North American Reptile Breeders Conference and Trade Show in Chicago, Illinois, on October 8-9, 2005, could have obtained an autographed copy of this beautiful and well written book. This "coffee table" book will certainly be a welcome acquisition for anyone curious about venomous snakes, and indeed for the entire herpetological community.

Vietnam Revisited: A Cobra in Combat

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From when I started teaching at a small college in Texas in 1968 through the late 1970s, almost five years after the end of the Vietnam war, I would have veterans of the war in my biology classes. In speaking with them about reptiles, I recall that many had some kind of a snake story to tell, usually involving a large python or some kind of venomous snake. I never wrote those stories down.

I recently started corresponding with a former high school buddy, Bob, who had spent two tours in Vietnam as a combat marine. I asked him several snake questions (note: a tour was about 13 months for marines and other enlistees; the amount of time in the field with snake-encounter potential varied with the MOS [Military Occupational Specialty] and assignment orders; both Bob and Sam in this account spent hundreds of days 24/7 living in the field). From my own experience collecting reptiles in a variety of habitats, I knew that finding snakes takes hard work and a lot of good luck, apart from relatively rare resource or seasonal aggregations as around hibernacula. I asked him how many snake encounters he could recall for the time he was there. He responded as follows:

During Vietnam's rainy season we shared space with all sorts of critters from snakes, scorpions, huge centipedes and in some remote jungle locations, tigers. I never experienced a tiger, but had confronted all the rest.

In Vietnam, Bob had two and possibly three encounters with snakes. The first sighting occurred while "convoying through a village, a large, at least eight-foot snake moved slowly but deliberately across the dirt road and held us up for a couple of minutes. The villagers sort of ignored it, but most of us were transfixed by its presence." The second sighting: "My platoon was point while moving through high elephant grass near the 'Ear,' a bend in the river that looked like a human ear. As I came abreast of a section of foliage, something was sunning itself on top of the blades, but disappeared so fast I couldn't tell what it was. I believed it had to be a snake for the grass to support it." The third snake encounter will be described below.

Surprised by the small number of snake encounters, I e-mailed Sam, a former student who had been a marine field medic for a tour in Vietnam, and asked him if he had had any snake experiences and further, did he treat any venomous snake bites. His response:

Sorry, but no snake stories nor treatment of bites from same. Lots of gunshot wounds but no snakes. I did see all manner of insects which were all over. Was located in far north of south VN and did see a tiger. One late pm, our patrol of 12- 15 marines was headed to ambush site and moving very fast downhill in single file (10 meters apart) when we sprung a tiger. He/she dashed between the man in front of me and I saw it clearly. No effort to attack us, ran away. I didn't sleep well in the open about 2 miles away later that night. Also we killed an orak (large deer-like mammal with 2

straight horns). We slaughtered it and were planning to consume it, but the war got in the way.

Now, Bob's third snake experience:

A nearby bunker became alive one night during a deluge with yells and gunfire. Fearing we were under attack the company went to 100% alert. One of my SOPs instead of firing blindly at unseen, but detected, enemy was to have everyone lob a fragmentation grenade out in front of his position. So we had crack, crack, boom, boom and yelling from all directions for about 20 minutes. It wasn't a good idea to wander around the position at night, so we 'Stood To' until dawn. The patrols we had out that night stayed put, set up defensive perimeters and just tried to hide not knowing what was up. Next morning, I head for the bunker only to find it completely vacated. I eventually catch up to its tenants and they tell me about this huge cobra that had visited them. One of the guys spotted it when he lit a cigarette (a no-no at night). He yells, and all hands cut loose in the general direction of the snake. After several rounds apiece they retreat and leave the bunker. Snake 1 - Marines 0. One of my Lance Corporals was an amateur herper and volunteered to go into the bunker and catch this venomous monster that had grown to 20 feet by now. However, before we let him go in we tossed in several smoke grenades. A RECON plane passing overhead, via radio asked what all the smoke was about and whether we needed MEDEVAC. Battalion monitored the conversation and the next minute I was on the net explaining to the colonel what had happened. He was yelling at me that whenever a Marine pulled a trigger there had better be dead [enemy] in the wire. Well, back to the snake, but he was long gone. All we did was piss him off and we figured the next time he would bite first and not try to share a little warmth with us.

Bob closed his e-mail with the following speculation: "I always thought that tossing a bunch of snakes into an enemy camp would wreak panic and havoc."

After I completed the above accounts, I entered "Vietnam snakes" into the Google search engine. I downloaded several accounts describing snake encounters. Two were especially detailed and involved cobras and I reference them here for anyone that is interested in reading them:

- 1) Harper, LTC Curtis E., "A Cobra Encounter in Vietnam"
<http://www.venomousreptiles.org/articles/66>
- 2) Sarlin, Ray, "100% Alert and Then Some!"
http://www.ichiban1.org/html/stories/story_38.htm

I was curious to see if there were military snake-encounter anecdotes associated with the Iraq war so I entered "Iraq snakes" into Google. I found no military-related snake accounts but did find an excellent summary of venomous snakes of Iraq meant to be a reference for military personnel. This is by Robert Sprackland who is the Director of The Virtual Museum of Natural History (www.curator.org) and is titled "Venomous Snakes of Central Iraq." In the future, it will be interesting to contrast snake encounters under combat conditions in a tropical rain forest with those in an arid/desert habitat.

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Notes on the Reproductive Biology of the Smooth Knob-tail Gecko, *Nephrurus laevisissimus* (Squamata: Gekkonidae), from Western Australia

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Abstract

Histological analysis was conducted on reproductive organs of the Australian gecko, *Nephrurus laevisissimus* from Western Australia. Females with enlarged ovarian follicles (> 4 mm length) were recorded from January, August to December. One female contained a corpus luteum from a previous clutch and yolk deposition for a subsequent clutch indicating *N. laevisissimus* may produce more than one clutch in the same reproductive season. Adult females were significantly larger than adult males. Mean clutch size was 2.1 ± 0.59 , range: 1–4. Four eggs is a new maximum clutch record for *N. laevisissimus*. Males produce sperm January, May, August to December. The period of spermiogenesis begins in spring.

The smooth knob-tail gecko, *Nephrurus laevisissimus*, occurs in southeastern Western Australia, extending into northwestern South Australia and southern parts of the Northern Territory, where it is associated with spinifex-covered sand dunes (Cogger, 2000). Previous information on *N. laevisissimus* reproduction is in Mertens (1958), Pianka and Pianka (1976), Delean and Harvey (1981), Pianka (1986) and How et al. (1990). The purpose of this note is to add additional information on the reproductive biology of *N. laevisissimus* from a histological examination of museum specimens. Studying the reproductive cycle of an organism is required to understand the evolution of lizard life-history strategies. These data are also useful in composing conservation policies.

Eighteen adult female *N. laevisissimus* (mean snout–vent length [SVL] = 76 ± 5 mm, range = 70–88 mm); twelve juvenile females (SVL = 60 ± 6 mm, range = 52–68 mm); and 52 adult males (SVL = 63 ± 8 mm, range = 48–75 mm) were examined from the herpetology collection of the Natural History Museum of Los Angeles County (LACM), Los Angeles: Adult females: LACM 57048, 57067, 57084, 57089, 57093, 57108, 57117, 57138, 57140, 57145, 57175, 57177, 57180, 57181, 57217, 57226-57228; Juvenile females: 57091, 57110, 57116, 57124, 57129, 57146, 57164, 57171, 57173, 57193, 57197, 57225; Adult males: 57057, 57064, 57065, 57069, 57072, 57075, 57077-57082, 57085-57088, 57090, 57094, 57096, 57097, 57099, 57105-57107, 57113, 57120, 57122, 57127, 57132, 57137, 57139, 57142, 57144, 57157, 57160, 57164, 57165, 57182, 57189, 57192, 57194, 57195, 57198, 57203-57205, 57209, 57210, 57215, 57216, 57219, 57223. Specimens were collected between 121°13'E to 123°91'E and 26°14'S to 28°15'S, Western Australia, during 1967 and 1968 by Eric R. Pianka. Data from these are in Pianka (1986). Gonads were dehydrated in ethanol, embedded in paraffin, sectioned at 5 µm and stained with Harris hematoxylin followed by eosin counterstain. Enlarged ovarian follicles (> 4 mm length) were counted; no histology was done on them. Male and female mean body sizes (SVL) were compared with an unpaired *t*-test and the relation between female body size and clutch number was examined by linear

regression analysis using Instat (vers. 3.0b, Graphpad Software, San Diego, CA).

The *N. laevisissimus* mean female body size was significantly larger than the mean male body size (unpaired *t*-test, $t = 7.2$, $df = 68$, $P < 0.0001$). How et al. (1990) similarly reported *Nephrurus* females were almost 20 percent larger than males of other *Nephrurus* species. The smallest mature female *N. laevisissimus* (enlarged ovarian follicles > 4 mm length) measured 70 mm SVL. Twelve females examined below this size (range: 52–68 mm) were not reproductively active. Monthly changes in the ovarian cycle are in Table 1. Oviductal eggs were previously removed and are in Pianka (1986). Females with enlarged ovarian follicles were found in January and August to December. Mertens (1958) reported a gravid *N. laevisissimus* from March in Northern Territory. In contrast, Delean and Harvey (1981) reported females from the last week of January in South Australia were not gravid. One December female (LACM 57140) contained a corpus luteum from a previous clutch and yolk deposition in an ovarian follicle for a subsequent clutch suggesting that *N. laevisissimus* in Western Australia may produce more than one clutch in the same reproductive season. This is in agreement with How et al. (1990)

Table 1. Monthly changes in the ovarian cycle of 18 *Nephrurus laevisissimus* from Western Australia. Column headings: YD = Yolk deposition; YDCL = Yolk deposition and corpus luteum; EF = Enlarged follicles > 4 mm length.

Month	<i>n</i>	Inactive	YD	YDCL	EF
January	4	0	1	0	3
August	4	0	0	0	4
September	5	0	1	0	4
October	1	0	0	0	1
November	2	0	1	0	1
December	2	0	0	1	1

Table 2. Monthly changes in testicular cycle of 52 *Nephrurus laevis* from Western Australia.

Month	<i>n</i>	Recrudescence	Early spermiogenesis	Full spermiogenesis
January	4	0	0	4
May	1	0	0	1
August	7	5	1	1
September	24	2	2	20
October	8	0	0	8
November	4	0	0	4
December	4	0	0	4

who reported some *Nephrurus* females had both oviductal eggs and developing yolky follicles indicating successive clutches are produced. Mean clutch size for 15 females with enlarged ovarian follicles (> 4 mm length) was 2.1 ± 0.59 , range: 1–4. This is slightly higher than the value reported by Pianka (1986): 1.96 ± 0.21 . Mertens (1958) reported a female *N. laevis* with a clutch of one egg. The female in my study with four enlarged (> 4 mm length) ovarian follicles (LACM 57177) from August (assuming all follicles completed development) represents a new maximum clutch size for *N. laevis*. Linear regression analysis revealed there was no correlation between female body size (SVL) and clutch size ($r = -0.12$, $P = 0.69$, $n = 14$).

Monthly changes in the testicular cycle of *N. laevis* are in Table 2. Three stages were observed. In “recrudescence” there is a renewal of germinal epithelium for the next

period of spermiogenesis. Primary and secondary spermatocytes predominate. Spermatids and a few metamorphosing spermatids are typically present in late recrudescence. In “early spermiogenesis,” a few clusters of sperm are present in the seminiferous tubules. This contrasts with “full spermiogenesis” in which areas occupied by metamorphosing spermatids and sperm are abundant in the seminiferous tubules. No “regressed” testes in which the germinal epithelium was exhausted were observed. Because samples were not available from all months one cannot completely describe the testicular cycle. Nevertheless, the presence of males in recrudescence and early spermiogenesis in August and September suggests the testicular cycle begins in spring and the presence of one male from May undergoing spermiogenesis suggests the cycle continues through summer. It is likely testes in the regressed condition occur in June and July, although no samples from these months were examined. Thus, *N. laevis* males have a prolonged period of spermiogenesis with sperm formation in some males occurring during seven months of the year (Table 1). The smallest reproductively active males (spermiogenesis) measured 48 mm SVL (LACM 57203, 57205) and were from October.

Reproductive strategies of Australian gekkonids are varied (King and Horner, 1993). Heatwole and Taylor (1987) lists eleven types of reproductive cycles common in Australian reptiles. *Nephrurus laevis* appears closest to fitting type IV which includes “spring and autumn spermatogenesis and mating, early spring and summer ovulations.” Additional reproductive information on *N. laevis* including time of appearance of young will be needed before the reproductive strategy of this species can be fully characterized.

Acknowledgment

I thank Christine Thacker (LACM) for permission to examine *N. laevis*.

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HerPET-POURRI

by Ellin Beltz

Slow and steady

The Chicago Turtle Club began in 1988 as a place for people primarily interested in turtles and tortoises to compare notes and spend time together with like-minded individuals. Founder Lisa Koester and the core group of devoted testudinophiles have met the last Sunday of every month ever since. Monthly meetings are held at North Park Village Nature Center, 5800 N. Pulaski. The *Chicago Tribune* featured the group, quoting Steve Spitzer's expertise on sexing turtles and a heads-up about the group's upcoming May festival — including turtle races! I laugh because it was a turtle race that started my involvement in CHS oh, so many years ago. Thanks to Ray Boldt for the charming clipping — the photo alone is cute enough for local folks to look through their snake paper for the back issue [February 2, 2006, Section 2, page 2].

Snake survives cancer

"Jackie" the popular fox snake at Volo Bog State Natural Area "had three cancerous tumors removed in November, said Volo Bog naturalist Stacy Iwanicki. She [the snake] was sewn up with sutures," spent a few days recovering and went back to the visitor center, "slithering a little slower and showing slight signs of her sickness." Dr. Steve Barten, who performed the surgery said Jackie had a fair chance of reoccurrence as the type of cancer she had tends to reappear. [*Chicago Tribune*, February 19, 2006, from Ray Boldt]

Life imitates Life

The Lawrence, Kansas, *Journal World*, January 31, 2006, reports that Joseph Collins was contacted when a Kansas University resident hall student found a little green lizard basking on a windowsill in the dorm. The lizard turns out to be an Italian wall lizard and Collins knew the story of how they'd come to be released 24 miles away in Topeka, 40 years before. "The first Italian wall lizards arrived in Kansas during the 1950s. Topeka pet store owner Charles Burt imported the lizards, along with a variety of other exotic animals, in a time before the government regulated such items. When Burt died in the 1960s, the lizards, either by neglect, escape or release, made their way out of the little shop to, of all places, a Kentucky Fried Chicken restaurant. There they found a nice home in a big box air conditioner outside the restaurant and began breeding. . . . The lizards, known in Italy for dwelling in urban environments, felt right at home in the city, living on insects and basking in the sun. Collins said the lizards' city dwelling allows for easy access to meals and hiding places. 'I always thought that they'd find their way out,' Collins said. 'Well, they have.'" Other folks questioned about the lizards weren't too concerned. Seems to remind me of other invasions, no one really cares until they're eating you out of house and home, keeping you awake all night, killing off valuable stock or native animals, or — perhaps most insidious of all — transmitting diseases. "Bill Stark, a biology professor at Fort Hays State University, found Italian wall lizards on that campus two years ago. He's heard the reptiles have spread as far south as Wichita, and as far west as Garden City and Dodge

City. . . . The lizard is, for the most part, smaller than native lizards, making it unlikely to be a real competitor for food or space. No one has found any reason for serious worry yet. But it's still early, Stark warned. 'That's what everybody says at the start of every biological disaster,' he said."

[*HerpDigest*, February 3, 2006, from Allen Salzberg]

Study first, kill second

The *Charlotte Observer* reports on a plan to insert radio transmitters into pythons so their habits in their new home, sweet home in Florida's Everglades can be determined. "Know thy enemy" has been great advice since prehistory. It is hoped this study will reveal some ecological weakness in the burgeoning python population. After the study, the snakes will be recaptured and euthanized to prevent any further increase in the population. [December 30, 2005, from Steve Barten]

No license required?

The Belfast *Telegraph Home*, [February 24, 2006] reported: "A consignment of live crocodiles and other reptiles has been intercepted in Northern Ireland in a major operation against the lucrative trade in exotic animals." Police [and Ulster SPCA officials] stopped a vehicle containing the animals which "was followed by a search in Omagh where further reptiles were removed from the home of a suspected dealer. . . . The recovered animals . . . include eight crocodiles, along with snakes, lizards and poisonous toads. . . . The crocodiles are relatively small . . . [but could] grow to around seven feet. . . . Under a long-standing anomaly, [Northern Ireland residents] have needed a license to keep a dog but not to have ownership of animals such as tigers, lions and gorillas." The Ulster SPCA's chief executive said, "We have shut down one of Northern Ireland's biggest exotic animal dealing operations," but he added he was disturbed because he, "had to leave an Egyptian cobra and two water moccasins behind in a house tonight after being told they were pets. They are lethal animals. . . . We are now witnessing the diminishing demand for big cats being replaced by an alarming craze for dangerous reptiles." [*Herp-Digest*, February 27, 2006, from Allen Salzberg]

G'day Baltimore

A new exhibit at the National Aquarium on Baltimore Harbor features more than 100 species native to Australia as well as Maryland's second highest waterfall, copies of Australian aboriginal wall paintings, free flying parrots and gallahs and a who's who of Australian reptiles. Visit <http://www.aqua.org>, for more information or just to drool on how beautiful and animal-friendly modern zoo exhibits have become. [*Arkansas Democrat-Gazette*, February 5, 2006, from Bill Burnett]

Venerable attraction?

Anybody remember Gatorama anymore? Described as a "venerable Florida roadside attraction," that began in 1957, it currently houses about 4,000 alligators and crocodiles. It was one of the state's original gator farms, converting easily to the Internet age, they now ship their trademark gator meat any-

where overnight. Outdoors, signs warn visitors “No swimming or sunbathing. Violators may be eaten.” [*Miami Herald*, August 14, 2005, from Alan W. Rigerman]

Turtlenapper caught

Well it wasn't a multi-million dollar kidnapping and heist, but British police caught the man responsible for tortoise-napping a leopard tortoise from the Paignton Zoo in south Devon. The tortoise was returned with only a slight case of the sniffles, according to the Orlando, Florida *Sentinel*, December 29, 2005, from Bill Burnett]

Greatest Fears

Thirty-eight percent of adults in the U.S. are terrified of snakes, 36% of heights, 28% of bugs and 26% of rats. [*USA Today*, January 12, 2006, from Bill Burnett]

Toxicity reports

- “Lethal levels of copper in pond water appear to be killing some salamanders and wood frogs in northeast Ohio, a 10-year study by the Cleveland Museum of Natural History has found. A decline in salamander and wood frog populations would have a huge impact on Ohio's wildlife because they are a key link in the animal food chain—they are eaten by larger animals and they eat smaller critters,” according to the Saturday, February 18, 2006, Cleveland *Plain Dealer*. [*HerpDigest*, February 20, 2006, from Allen Salzberg]
- “Scientists at the Savannah River Ecology Laboratory near Aiken, South Carolina, have found amphibians are exposed to contaminants through maternal transfer. . . . [They] collected dozens of reproductively active female eastern narrow-mouthed toads located around a settling basin near an Aiken-area coal burning power plant. The burning of coal releases mercury, selenium and other harmful contaminants into the environment. The research team tested toads and their offspring for the presence of chemical contaminants, as well as examining the offspring for developmental abnormalities. . . . Both adult females and their offspring from the settling basin were compared with toads from a contamination-free reference site.” [*HerpDigest*, February 24, 2006, from Allen Salzberg]

20 new frogs, but no dinosaurs

Scientists announce the results of their first expedition to a remote area of Indonesia where they found 20 new species of frogs. They also found animals believed to have been extinct in the wild as well as new species of birds and rare mammals, including echidnas. Local people never went into the remote interior area, described as a “Lost World,” which apparently permitted many of the rarest species to survive. [Memphis, Tennessee *Commercial Appeal*, February 8, 2006, from Bill Burnett] One of my email correspondents sent the story with the note “Can McDonald's be far behind?” [Also received from Ray Boldt, *Chicago Tribune*, February 6, 2006, Alan Rigerman, *Miami Herald*, February 8, 2006, and one other person who remains nameless by request.]

Another new frog!

Researchers in southern Venezuela have found a collapsed

gorge with an interior waterfall originally described in the press as “A cave so huge helicopters can fly into it . . . and land next to a towering waterfall.” The area is on the most geologically ancient part of South America and is considered a hotspot of biological diversity as evidenced by the discovery of a new dendrobatid frog species, *Colostethus breweri*, named for the frog's identifier, Charles Brewer-Carías. [Gorgeous photo and full story at <http://www.msnbc.msn.com/id/11499977/>] *HerpDigest*, February 24, 2006, notes: “This discovery, not widely reported, was detailed in the January 17 issue of the journal *Zootaxa*.” [from Allen Salzberg]

Old-fashioned science

A researcher on St. Thomas, Virgin Islands, plans to conduct the first systematic amphibian survey on those islands. Four species are believed to be natives and three including the cane toad, Cuban treefrog and coqui have become established in recent history—most believed to have arrived by plant shipments. [St. Croix, Virgin Islands, *Daily News*, January 11, 2006, from Ms. G. E. Chow]

How fast do they hop?

“Cane toads in Australia have developed longer legs to enable them to invade more territory. . . . Introduced into Australia 70 years ago to control insect pests in sugar cane fields, they have since spread across one million square kilometers (390,000 square miles) in the north and east of the country and have become one of the continent's worst environmental disasters,” according to the February 20 *Daily Times* of Pakistan excerpting an article originally published in *National Geographic*, February 15, 2006, which adds, “When the toads were first introduced, they spread at a rate of about six miles (ten kilometers) per year. Today cane toads advance more than 31 miles (50 kilometers) annually. This faster pace is happening, at least in part, because toads at the forefront have about 10 percent longer legs than toads of earlier generations, said Richard Shine, an ecologist at the University of Sydney in Australia.” Their actual rate of movement is equivalent to them covering the states of either Connecticut or Hawaii each and every year for the past 70 years with their total coverage now greater than the area of the state of Texas plus half of California. Previously the government had been using a totally incorrect figure. “The cane toad continues to expand its range southward at about 1.3 kilometers (0.8 miles) a year, and is also spreading across the tropical north towards Western Australia. The toads can be accidentally transported to new locations, for example in pot plants or loads of timber.” [Government of Australia fact sheet, <http://www.deh.gov.au/biodiversity/invasive/publications/cane-toad/>]

Be glad toads don't fly

- According to the Smithsonian Institution's *BugInfo*: “In 1957, twenty-six African queens, along with swarms of European worker bees, escaped from an experimental apiary about 100 miles south of Sao Paulo [Brazil, naturally hybridized]... with European honeybees. . . . [They] spread northward through South America, Central America, and eastern Mexico, progressing some 100 to 200 miles per year,” reaching Texas

in 1990, Arizona in 1993 and California in 1995. [<http://www.si.edu/resource/faq/nmnh/buginfo/killbee.htm>]

- The *Orlando Sentinel* (January 30, 2006) trumpets “Killer Bees Pose Threat. . . . Africanized honeybees establish a Florida foothold—a danger to those who venture outdoors. No one knows how to stop them. . . . If hurricanes, roaches, sea lice and insurance bills weren’t bad enough, Floridians can add a new menace to their list of worries. . . . After decades of hype . . . [killer bees] have established a foothold . . . in St. Lucie County, . . . swarmed onto unlucky utility workers, . . . [and] turned up in ports throughout the state. . . . [Their presence is] suspected at . . . Busch Gardens and Downtown Disney.” Residents are urged to be careful opening things like barbecues and to check their yards before mowing as the noise may raise clouds of bees. Africanized honey bees are already established in Texas and California having made the long march from Brazil to Mexico over the last 50 years. [from Bill Burnett]

Stories to be told together

- After more than a decade of looking at other possible causes of coral “bleaching,” a whitening caused by overgrazing by symbiotic algae, researchers have noticed a correlation between the amount of simple sugars being released onto or near the reef and bleaching. Curiously, no such correlation is found by increasing nitrogen. The symbionts apparently have a sweet tooth and so much human waste is sweet, that it may have been feeding the symbionts—thus bleaching the coral. [*Science*, February 24, 2006, from Eloise Beltz-Decker]
- More fibropapilloma tumors are being detected on turtles on the human influenced side of the Puerto Rican island of Culebra than are being found on turtles on the other side of the island. Many more turtles are infected near the main island of Puerto Rico, but as the turtles swim back and forth between the islands, the possibility of disease transmission is heightened with every diseased turtle. [*Virgin Islands Daily News*, November 2, 2005, from Ms. G. E. Chow]
- Many more scientists are agreeing that climate change is happening than do not agree—some even directly tie the warming into increases in chytrid fungus. “Earth’s average temperature rose roughly 1 degree in the 20th century and could rise 10 more degrees by 2100,” said scientists reporting to the United Nations [reported by *USA Today* January 12, 2006, from my Ferndale neighbor Chrys Hamper and super-clipper Bill Burnett]

Things that go beep in the night

In a move we may see copied around the nation, Miami / Dade County in Florida is considering an ordinance that would require all pythons sold or traded to be microchipped (PIT tagged). Unfortunately, their first stab at a law was not specific and the state recommended against their trying to regulate “wildlife.” As we all know, pythons are a huge problem in Florida—but laws have to be specific. If you discovered a wild python in your garage, the way they were writing the law you would have been responsible for PIT-tagging it even though it had nothing to do with you! [by email from Alan

Rigerman who notes that “at least for today the ordinance has been pulled!”]

We don’t need no stinking gators!

Criminal charges were prepared against two men who dumped an alligator into a lake in Los Angeles. The alligator has been nicknamed “Reggie” and has attracted a following of local people who watch him at 60-acre Lake Machado which has been ringed with orange fencing and guards at a cost of \$155,000 so far. The men were charged with releasing the gator, possessing the gator, causing a public nuisance and possession of marijuana. [Orlando, Florida *Sentinel*, December 30, 2005, from Bill Burnett]

Good friends “Gopher-thur”

Minneola, Florida, is trying to “make developers try harder to save threatened gopher tortoises from bulldozers. . . . Since 1991 the state has issued so-called ‘take’ permits for tens of thousands of tortoises that allowed developers to kill the creatures, which are considered a species of special concern. Permit fees brought in about \$47 million, some of which was used to buy part of 22,000 acres of wildlife areas. . . .” Even so 67,000 tortoises have been moved since 1989 according to wildlife officials. “About 74,000 tortoises were estimated to have been on properties . . . where take permits were issued, according to Fish and Wildlife officials. . . . Tortoise populations have dropped up to 80 percent in the past century because of habitat loss, disease, hunting and predators. . . . Minneola is paying about \$76,000 to relocate about 50 tortoises from a 32-acre site targeted for the city’s proposed wastewater-treatment plant,” according to the Orlando, Florida *Sentinel*, December 28, 2005, from Bill Burnett]

Snakefood Quote

This year, both Groundhog Day and the State of the Union Address fell in the same week. As Air America Radio pointed out, “It is an ironic juxtaposition: One involves a meaningless ritual in which we look to a creature of little intelligence for prognostication, and the other involves a groundhog.” [Associated Press, February 6, 2006, from Karen Furnweger]

The kids who started the trend

“I thought your society might be interested in knowing that 2006 is the 20th anniversary of the Ornate Box Turtle being the state reptile. You can access some interesting historic facts along with other information by following the different Ornate Box Turtle links from my main website: <http://www.KsHeritage.com>. I have also set up a special guest book where people can share their box turtle stories. . . . I encourage your members to consider adding their favorites.” Larry L. Miller, Northern Hills Junior High School, Topeka, Kansas <http://www.njhbiology.com>

Thanks to everyone who contributed this month! You can see your name both here and online forever by sending clippings from newspapers and magazines to: Ellin Beltz, POB 1125, Ferndale, CA 95536 and/or electronic suggestions to “ebeltz@ebeltz.net”

Big Sand Mound Trip—September 10, 2005

Michelle Nash

Let me start with a giant thank-you to Deb Krohn for arranging last year's exciting, educational, and fun trip to an awesome and unique habitat known as Big Sand Mound Nature Preserve. It is found just west of the Mississippi River in the Muscatine, Iowa, area. The day started off without a hitch due to Deb's clever planning and organizing. Knowing that there were things to coordinate with the group prior to our entrance to the property, she allowed for extra time by advising everyone to arrive by 9 A.M. even though we were not scheduled to be admitted onto the preserve until 9:30. This allowed us to make the most of the morning before it got too warm and thwarted any potential problems that could delay the group.

It was a warm and sunny day when we arrived at the entrance to the Louisa Generating Station, owned by Mid-American Energy. Together, MidAmerican Energy and the Monsanto Company own and manage this marvelous 510-acre preserve. Right away what struck me was the ground cover alongside the road where we pulled off to wait for the others. Typical of midwestern grassy areas were dried Queen Anne's lace and the blooming goldenrod, but surprisingly there were oodles of prickly pear cactuses scattered about. I never would have guessed cactus live so far north or even in the Midwest. Perhaps it's not that uncommon, but for me it was fascinating. I've only ever seen it in the grocery stores here in the Midwest.

Once we were all gathered, it was time for processing all us herpers. We piled into the cars and we lined up to pass through the security checkpoint where IDs were shown and names were checked off, and we were given official visitor badges. NOW we were ready to get going!

Paul Mayes, an entomologist, and Connie Veach, Environmental Coordinator for the Monsanto Company, were our wonderfully gracious hosts. We had a brief meeting to go over some of the rules we must follow to protect the area, to discuss our game plan, and to review some of the cool critters the area was known for and off we went. We drove out to a more remote area of the preserve and started discovering wildlife the moment we stepped out of our cars. Immediately one of the

children spotted a praying mantis, the European variety I believe, and we all got a good look and headed off into the gently rolling, arid sand mounds of the area. The sparse, low-lying, desert-like plant life didn't look terribly promising at first to the untrained eye, but it wasn't long before someone spied a monarch chrysalis attached to a dried piece of brush in the field. A first for this amateur lepidopterist! I've caught dozens of monarch caterpillars and watched them eat and transform and eventually fly away, but had never before seen a monarch chrysalis in the wild.

We continued on our way, learning all the while, as Paul filled us in on more of the rich history of the area and what other creatures awaited us. He identified the strange crescent shaped holes in the sand as toad burrows. We didn't manage to unearth any at the time, but not for lack of trying! Moments later we saw our first lizards—six-lined racerunners. And they don't have that name for nothing! Try as we might we couldn't catch any! Even the quick children with butterfly nets in hand had no luck. Still, catching sight of them and the resulting chase was exhilarating. It wasn't long before we headed into the forested area that lay between the oxbow waterway and the desert-like sand mounds. Once there, we began to discover turtle shell after turtle shell, and eventually, the shells with the live ones inside.

Paul was an excellent guide as he identified turtle after turtle and shared his vast knowledge of the history of the area and its current inhabitants. He showed us how many of the turtle shells were notched by local scientists doing field research. This helps them identify and keep records on each individual turtle they came across. Paul welcomed all questions and answered with enthusiasm! There was much sand in the area, and knowing he was an entomologist, I took a chance and asked him if the area had ant lions, to which he answered, "Absolutely!" I was thrilled. It didn't take long for us to discover some of their small funnel-shaped traps in the sandy loam of the forest floor. We observed how ants fall into the lairs and are quickly snatched by giant jaws, then dragged under to meet their doom.



Prickly pear cactus, *Opuntia* sp., is widespread at the Big Sand Mound Nature Preserve.



This handsome male ornate box turtle, *Terrapene o. ornata*, was one of many such found by CHS members.



A young eastern hog-nosed snake, *Heterodon platirhinos*.

Being a very dry year, the water was very low as we explored the oxbow region. There was no getting too close to the water unless someone wanted to lose a shoe in the ample mud! There was, however, a wonderful opportunity to explore a beaver lodge that was now somewhat high and dry. I tore my best jeans on protruding branches there, but had the best time poking my head down into gaps and trying to catch glimpses of the multitude of frogs taking refuge throughout the lodge. This is where the children who were present excelled. Being small and agile, they did indeed enjoy exploring this animal home as well. After leaving the water's edge we headed back into the drier hills and were pleased to come upon a lovely eastern hog-nosed snake. The greenish color was stunning and its temperament was very accommodating, considering we had removed it from its hiding spot under a log. This find in the wild was a first for many of us and it was quite a while before we were done admiring it and were ready to put it back.

Later, several of us rested in the shade of some trees while one of our most avid herpers, Mike Scott, was still hard at work lifting timbers and peering into bushes. His diligence paid off when the largest of our finds that day, appeared to him as if by magic. It was lying right out in the open—a huge bullsnake! Another first for many of us; and was it ever a hisser! They are said to hold the record for loudest hiss from a snake. A few of us held this big beauty and it was stunning! I managed to get a couple of pictures of it puffing out its cheeks and hissing as Mike Dloogatch held it. Many congratulations were offered to Mike Scott for the find of the day and he released the bullsnake near a tall pine tree, which it promptly scaled (pardon the pun) with the greatest ease. Once it got about 12 or 15 feet up, it positioned itself back and forth among the branches so it appeared to be just another limb on the tree. Fantastic camouflage! It left me wondering if they frequently climb trees to hide from or get away from threats because it seemed a wonderfully effective way to hide. Watching him climb, instead of diving under something, was a real treat.

Shortly after this excitement we were searching with renewed vigor and as usual, the ever-gracious Ron Humbert made the rounds among people and inquired if we were having fun and/or any luck. Which of course, we were! At that point it occurred to me that you just couldn't experience better cama-



This bullsnake, *Pituophis catenifer sayi*, was lying out in the open.

raderie than during one of these herping events. Though by this time the heat of the day was making our hunting and exploring less productive, I was pleased we were all just as enthusiastic as at the beginning of our adventure.

Towards the end of our day, we made our way back to the cars where a few people stayed to rest, and several of us took off for a short romp into another section of woods. This area was cooler and damp and was host to a number of box turtles and interesting fungi and lichens. While there, we even came upon a deer skeleton, which looked so perfectly placed as to resemble an exhibit created just to satisfy our curiosity. For the entomologists among us, there were oodles more praying mantises in the fields on the way back. And not to forget the botanists, there were many cacti and various prairie flowers to enjoy. All in all, it was a wonderful day and we couldn't have asked for a better group outing. Once again, I recommend to all CHS members that these trips are not to be missed if you want to have a great time and learn a few things along the way. Watch for another Big Sand Mound trip, currently planned for April, May or June.

And lastly, just to share a few tidbits from others who came on this adventure, here are a few quotes from during and after this outing, as well as a more complete list of things we saw:

- Alice Spencer (Deb Krohn's mom): "Wow, these people sure do love herps. There really is something for everyone!"
- Betsy Davis: "... finding the hognose and the bullsnake made the day great. And the [hognose] snake was so adorable."
- My daughter Becky Nash (before we'd even driven away): "When can we do this again?!"
- Ron Humbert: "We only have an hour left in this paradise so let's get moving!" Said with a grin and met with enthusiastic smiles and affirmations from the rest of us.

A list of many of our finds: Ant lions, beaver dam, bobcat tracks, ornate box turtles, bullsnake, butterflies, caterpillars, cricket frogs, deer skeleton, eastern hognose snake, amazing fungi, garter snake, green frogs, Illinois mud turtles (shells), red & green lichens, painted turtles (shells), preying mantises, racerunners, red-eared sliders (shells), toad burrows, turkey (tracks), and turkey vultures!

Herpetology 2006

In this column the editorial staff presents short abstracts of herpetological articles we have found of interest. This is not an attempt to summarize all of the research papers being published; it is an attempt to increase the reader's awareness of what herpetologists have been doing and publishing. The editor assumes full responsibility for any errors or misleading statements.

DESICCATION RISK OF MOLE SALAMANDERS

B. B. Rothermel and T. M. Luhring [2005, J. Herpetology 39(4):619–626] note that clear-cutting and other forest management practices that remove canopy and disturb ground cover may exacerbate the risk of desiccation, particularly for newly metamorphosed amphibians. The authors examined dehydration rates of juvenile mole salamanders (*Ambystoma talpoideum*) in relation to burrow availability in four experimental forest management treatments. Juvenile salamanders ($N = 41$) were confined to small enclosures in four treatments representing a range of habitat disturbance: clearcut with coarse woody debris (CWD) removed; clearcut with CWD retained; thinning; and an unharvested control of second-growth, mature loblolly pine. Half of the salamanders in each habitat treatment were provided with artificial burrows. Water loss over 72 h was significantly higher in the clearcut with CWD retained than in the other three treatments. Most water loss occurred during the first two nights, when salamanders may have been most active. Only 40% of salamanders without burrows survived in the clearcuts, versus 90% in the thinned stand and 100% in the control. Ninety percent of the salamanders with access to a burrow survived in the clearcuts versus 100% in the thinning and control. No correlation was found between soil moisture and water loss and higher desiccation rates in the clearcuts were attributed to high temperatures ($> 44^{\circ}\text{C}$). Although habitat changes resulting from thinning did not lead to increased desiccation, complete canopy removal greatly increased risk of mortality caused by desiccation. The results also demonstrate that this risk is strongly mediated by the availability of burrows.

WEST NILE VIRUS IN LOUISIANA ALLIGATORS

J. G. Nevarez et al. [2005, J. Herpetological Medicine and Surgery 15(3):4-9] note that West Nile virus (WNV) has been reported to affect various crocodilian species including the American alligator, *Alligator mississippiensis*, the Nile crocodile, *Crocodylus niloticus*, and the Morelet's crocodile, *Crocodylus moreletii*. In the fall of 2003 an increased number of mortalities were observed at various alligator ranches in Louisiana. Affected animals were reported to have neurologic signs followed by death. At the time West Nile virus (WNV) had already been diagnosed in alligators from Georgia and Florida, but not Louisiana. This report outlines the findings of physical exam, necropsy, histopathology and diagnostic tests of affected animals. All brain tissue samples (13/13) submitted for RT-PCR were positive for WNV. Seventeen positive cases were diagnosed by viral isolation (17/22; 77%). Viral isolation, RT-PCR and immunohistochemistry have proven to be useful tests for diagnosing WNV in alligators. One interesting aspect of these cases is that only one of the four affected facilities had alligators hatched in Louisiana. The other three had imported hatchlings from Florida and Texas.

FORAGING IN PIGMY RATTLESNAKES

G. Bevelander et al. [2006, Herpetologica 62(1):47–55] tested the roles of shelter and prey odor cues on prestrike movement patterns of the dusky pigmy rattlesnake, *Sistrurus miliarius barbouri*. In the first experiment, prey odors—mouse, frog, lizard, plus control—were presented in various combinations with and without shelters. The rattlesnake initially preferred sites with both frog odor and shelter. However, this changed over a 23-h period so that shelter alone became the most preferred microhabitat. The initial 2 h pigmy response was similar to that reported for the western rattlesnake (*Crotalus viridis*), in that they responded differently to the four choice combinations of shelter and prey odor. This initial pigmy response differed in that only frog odor (but not mouse or lizard odor) affected their initial choices. This work also indicates that when foraging, novel prey odors (frog) initially attracted their attention, but preference for this odor soon declined. The second experiment examined the preference for prey odors by simultaneously presenting all three prey odors plus control (water). The snakes exhibited no prey odor preference during the first 2-h or during the total 23-h of the trials. In both experiments, the pattern of circadian activity was the same. Circadian activity showed two peaks, one shortly before onset of the nocturnal phase and the second just before midnight; thereafter, activity gradually declined so that most snakes were in, and remained in, a shelter by morning when the diurnal phase began. In these experiments, active movement in pigmy rattlesnakes occurred nocturnally and by day they remain in settled locations. While in such settled positions, the pigmy rattlesnakes coiled into stereotypic ambush postures facing the opening in their shelter where prey would most likely pass.

EVIDENCE FOR SELECTION ON THERMOREGULATION

R. P. O'Donnell and S. J. Arnold [2005, Copeia 2005(4):930-934] note that despite widespread belief that selection molds thermoregulatory behaviors, direct evidence for fitness effects is extremely rare. The authors studied the effect of developmental temperature on embryo mortality in a viviparous snake. Seventy-four female *Thamnophis elegans* were maintained at one of nine constant temperatures during pregnancy (21–33°C). The duration of pregnancy was recorded for each female as well as the sex, snout–vent length, mass and survival of 504 newborns. Embryo survival was highest at an intermediate temperature (26.6°C). The developmental temperature of maximum survivorship in *T. elegans* corresponds to the temperature that induces minimum developmental abnormality and the optimum temperature for whole organism performance. These three thermal optima together correspond with the average temperatures imposed on embryos by free-ranging pregnant females (26.6°C). This correspondence implies that thermal optima are coadapted to thermoregulation in *T. elegans*.

EARLY EVOLUTION OF THE VENOM SYSTEM IN LIZARDS AND SNAKES

B. G. Fry et al. [2006, *Nature* 439:584-588] note that among extant reptiles only two lineages are known to have evolved venom delivery systems, the advanced snakes and helodermatid lizards (Gila monster and beaded lizard). Evolution of the venom system is thought to underlie the impressive radiation of the advanced snakes (2,500 of 3,000 snake species). In contrast, the lizard venom system is thought to be restricted to just two species and to have evolved independently from the snake venom system. The authors report the presence of venom toxins in two additional lizard lineages (monitor lizards and Iguania) and show that all lineages possessing toxin-secreting oral glands form a clade, demonstrating a single early origin of the venom system in lizards and snakes. Construction of gland complementary-DNA libraries and phylogenetic analysis of transcripts revealed that nine toxin types are shared between lizards and snakes. Toxinological analyses of venom components from the lace monitor, *Varanus varius*, showed potent effects on blood pressure and clotting ability, bioactivities associated with a rapid loss of consciousness and extensive bleeding in prey. The iguanian lizard *Pogona barbata* retains characteristics of the ancestral venom system, namely serial, lobular non-compound venom-secreting glands on both the upper and lower jaws, whereas the advanced snakes and anguimorph lizards (including monitor lizards, Gila monster and beaded lizard) have more derived venom systems characterized by the loss of the mandibular (lower) or maxillary (upper) glands. Demonstration that the snakes, iguanians and anguimorphs form a single clade provides overwhelming support for a single, early origin of the venom system in lizards and snakes. These results provide new insights into the evolution of the venom system in squamate reptiles and open new avenues for biomedical research and drug design using hitherto unexplored venom proteins.

A NEW SPECIES OF KRAIT

U. Kuch et al. [2005, *Copeia* 2005(4):818-833] describe *Bungarus slowinskii*, a new species of krait from the Red River drainage in northern Vietnam. The authors suggest “Red River krait” as the English common name. The new species differs from all congeners except its sister species *Bungarus bungaroides* by the combination of divided subcaudals, dorsal scales arranged in 15 rows, black and white rings on body and tail, and in color pattern of the head as well as hemipenis morphology. The new species differs from *B. bungaroides*, a distantly allopatric species ranging from eastern Nepal to northern Myanmar, in molecular characters and color pattern. The authors propose a vicariance hypothesis in which speciation coincided with the uplift of intervening mountain ranges in southwestern Yunnan (China) and/or Late Tertiary glaciations. The specific name honors the late Joseph B. Slowinski, Associate Curator of Herpetology at the California Academy of Sciences in San Francisco, for his contributions to the herpetology of Southeast Asia and the systematics of snakes, particularly elapids. Three weeks before the discovery of this new species, Joe tragically died from the bite of a *Bungarus* sp. while leading an expedition to the mountains of northern Myanmar.

PAIRING IN RED-BACKED SALAMANDERS

E. D. Prosen et al. [2006, *Herpetologica* 62(1):10-18] note that previously published studies concerning social behavior in red-backed salamanders (*Plethodon cinereus*) reported that in the forest (1) some male-female pairs co-inhabit territories even during the summer noncourtship season, and that in laboratory experiments (2) these pairs act as if they are socially monogamous, (3) males aggressively punish female partners that become polyandrous, and (4) females aggressively punish male partners that become polygynous. Past studies suggest that males and females freely choose their pair-partners in the forest and that sexual intimidation functions to keep partners monogamous. However, this inference is based on several underlying assumptions, which this study was designed to test. A series of experiments was performed using randomly established pairs to test the assumptions that ‘natural’ pairs are more than an effect of familiarity between individuals and that extended housing as ‘pairs’ in the laboratory does not account for pair-like behavior. No evidence was found that members of either sex punished the opposite sex when laboratory-created pairs were housed together for either five or 30 days. Therefore, the authors conclude that the ‘pair-like’ behavior of natural pairs represents more than familiarity and that extended housing together does not account for that behavior.

BIOLOGY OF BURROWING ASPIDS

R. Shine et al. [2006, *Copeia* 2006(1):103-115] note that ecological data on poorly-known snake species can suggest novel hypotheses about selective forces for interspecific variation in morphological traits. The nocturnal fossorial snakes of the family Atractaspididae represent an ancient African radiation that may comprise the sister group to other “advanced” snakes such as the Elapidae, but have attracted little ecological study despite their diverse and unusual morphology (including a unique “side-stabbing” mode of venom delivery in one lineage). Measurement and dissection of 639 preserved specimens of six species showed that females attained similar or larger mean adult body sizes than did conspecific males in all six taxa, but males had relatively longer tails and, generally, relatively larger heads. The magnitude of sexual dimorphism varied considerably; for example, mean adult body sizes were similar in males and females for *Atractaspis bibronii* and *Amblyodipsas ventrimaculata*, but there was no overlap in adult body sizes between the sexes in *Amblyodipsas polylepis*. All species produced small clutches of relatively large eggs, but with significant interspecific variation in fecundity. Diets also differed, within a general pattern of specialization on elongate fossorial reptiles. *Xenocalamus* species mainly took amphisbaenians (at least during adult life), whereas *Atractaspis*, *Amblyodipsas* and *Macrelaps* consumed a wider array of prey, especially snakes and burrowing skinks. In contrast to previous reports, the authors found few mammalian prey items in *Atractaspis*. Multiple evolutionary shifts in feeding structures (venom systems, head shapes, etc.) within this group may represent adaptations to taking fossorial prey in narrow burrows, and specifically to overcome the challenges posed by the ability of squamate prey to block burrows (and thus, impede predator pursuit) by tail autotomy.

EVOLUTION AND SYSTEMATICS OF PARTHENOGENETIC TEIID LIZARDS

J. E. Cordes and J. M. Walker [2006, *Copeia* 2006(1):14–26] note that the whiptail lizard *Aspidoscelis dixonii* (Teiidae) comprises three distinctive color pattern classes (i.e., variants); A and B are restricted to Presidio County, Texas, and C is isolated over 500 km to the west-northwest in Hidalgo County, New Mexico. Pattern class E of *A. tessellata* is widely distributed in Chihuahua, Texas, and New Mexico. Genetic data have verified that these parthenogenetic species are hybrid-derivatives of *A. tigris marmorata* × *A. gularis septemvittata*; however, the number of hybridization events involved in their origin has remained problematic. The authors used 19 lizards in laboratory skin-grafting experiments to test the histoincompatibility responses among *A. dixonii* A, B, C, and *A. tessellata* E. The results of these graft exchanges indicated that individuals of all four pattern classes were mutually histocompatible to skin grafts, a level of genetic homogeneity indicative of the origin of *A. dixonii* and *A. tessellata* from the same hybrid lizard. Thus, the color pattern variants *A. dixonii* A, B, C, and *A. tessellata* E are identifiable products of mutation and/or recombination in a single historical group. Such postformational genetic changes have not been shown to be capable of mimicking the mutual graft rejection responses that occur between all members of historical groups derived from different hybrid zygotes. Falsification of the hypothesis that *A. dixonii* and *A. tessellata* were derived from different hybrid individuals also nullified the generally accepted rationale for their treatment as separate species. *Aspidoscelis dixonii* is revealed to consist of a morphologically well-defined grouping of three of the several diploid color pattern classes (i.e., tokogenetic arrays) in the *A. tessellata* complex that are also potentially diagnosable as species using similar criteria. Based on histocompatibility data presented herein for the *A. tessellata* complex and a review of preexisting data for other taxa, the authors provide a comparison of published opinions pertaining to the taxonomic status of *A. dixonii* and *A. tessellata* and the other named parthenogenetic entities in the *A. cozumela*, *A. sexlineata* and *A. tessellata* species groups of *Aspidoscelis*. This generic name was recently resurrected from the synonymy of *Cnemidophorus*; however, monophyly has yet to be achieved for the revised genus “*Cnemidophorus*” owing to paraphyly in the “*C. lemniscatus*” species group.

TRACKING FROGS WITH SPOOL-AND-LINE

A. M. Tozetti and L. F. Toledo [J. Herpetology 39(4): 640–644] note that capture/recapture studies significantly increase our knowledge of the natural history of anuran amphibians. Many different methods have been employed in these studies, but a number of new techniques still require experimental validation. During two reproductive seasons in a Cerrado remnant in southeastern Brazil, the authors investigated the movement patterns and habitat use of the pepper frog, *Leptodactylus labyrinthicus*, using a spool-and-line device. This low-cost device did not appear to interfere with the activities of the frogs and allowed for constant monitoring, showing precise routes of movement and great predictability of relocations. Both sexes were active at night. During the day,

males and females made use of retreat sites under vegetation or in burrows constructed by small- and medium-sized mammals. Males and females did not use standardized routes; there were no significant differences between their movements, and movements were not correlated with body size or environmental conditions. Individuals are able to move further than 100 m per day, a characteristic that may enable this species to colonize or recolonize open areas.

EUROPEAN TREEFROG POPULATION SIZE ESTIMATES

T. U. Grafe and I. Meuche [2005, *Amphibia–Reptilia* 26(4): 437–444] note that chorusing male anurans typically spend only a part of the breeding season calling although chorus tenure is often the best predictor of mating success. The authors determined the number of nights males attended a chorus (chorus tenure) and its influence on mating success in the European treefrog, *Hyla arborea*. The median chorus tenure was 7.5 nights out of a study season of 38 nights. Males that spent more than two nights in the chorus were present for an average of 47% of the nights between their first and last night in the chorus. Minimum daily temperature, ambient temperature at initiation of calling, and daily rainfall explained 37.8% of the variance in male attendance. Twenty-five males were calling on the night of peak activity, a fraction of the 44 males marked. This suggests that estimates of male population size based on peak activity, widely used by conservation biologists, are inaccurate. The authors suggest that, when mark–recapture methods cannot be used, male population size be calculated by using a regression model based on the peak number of calling males that can be further developed as more data accumulates.

MIMICRY OF A LESS TOXIC MODEL

C. R. Darst and M. E. Cummings [2006, *Nature* 440:208–211] note that batesian mimicry — resemblance of a toxic model by an edible mimic — depends on deceiving predators. Mimetic advantage is considered to be dependent on frequency because an increase in mimic abundance leads to breakdown of the warning signal. Where multiple toxic species are available, batesian polymorphism is predicted — that is, mimics diversify to match sympatric models. Despite the prevalence of batesian mimicry in nature, batesian polymorphism is relatively rare. The authors explore a poison-frog mimicry complex comprising two parapatric models and a geographically dimorphic mimic that shows monomorphism where models co-occur. Contrary to classical predictions, results of toxicity assays, field observations and spectral reflectances show that mimics resemble the less-toxic and less-abundant model. The authors examined “stimulus generalization” as a mechanism for this non-intuitive result with learning experiments using naive avian predators and live poison frogs. They found that predators differ in avoidance generalization depending on toxicity of the model, conferring greater protection to mimics resembling the less toxic model owing to overlap of generalized avoidance curves. This work supports a mechanism of toxicity-dependent stimulus generalization, revealing an additional solution for batesian mimicry where multiple models coexist.

Unofficial Minutes of the CHS Board Meeting, February 10, 2006

Rich Crowley called the meeting to order at 7:36 P.M. Board members Cindy Rampacek, Mike Scott and Erik Williams were absent.

Officers' Reports

Recording Secretary: Linda Malawy read the minutes of the January 13 board meeting. The minutes were accepted as read.

Treasurer: Revised December 31, 2005, financial reports were passed out and the adjustments were explained by Andy Malawy. Corrections had been made to the Grant Expense for the year 2005 which had been overstated by \$900.00 due to an incorrect journal entry. In addition, a correction was made to the restricted adoptions fund balance which had not been credited with the adoptions income from May through December 2005. The January 31, 2006, financial reports were distributed and reviewed.

Membership Secretary: Deb Krohn distributed the membership report. Membership stands at 586 for February 2006.

Sergeant-at-arms: Betsy Davis reported that there were 41 people at the January 25 general meeting.

Committee Reports

Shows: Jenny Vollman reported that we did secure space for the Arlington Pet Fair March 17–19. Peggy Notebaert show dates are March 4–5, April 22–23, May 6–7, June 3–4. Linda Malawy announced that the Dupage Animal Care and Control will be hosting their 2006 annual Multi Shelter Pet Expo Saturday May 13 from 11:00 A.M. to 3:00 P.M. at 120 North County Farm Road in Wheaton.

ReptileFest: Rich Crowley suggested putting the dates for ReptileFest on the website.

Raffle: We are still looking for a new raffle coordinator.

Adoptions: Rich Crowley reported that Steve Sullivan has been helping boy scouts who are seeking the Reptile Study merit badge. Steve has suggested that the CHS can potentially be of assistance to the scouts by working with them in a foster program. Rich mentioned an email he received from DePaul University. They are doing a survey on shelter adoption programs. The CHS will be given the results of the survey.

Grants: Mike Dloogatch reported that the Grants Committee will be meeting February 11 to choose the recipients of the 2006 CHS grants. Mike reported that we received 18 grant applications this year.

Old Business

North Park Village: Mike Dloogatch moved to accept a contract with North Park Village for space to hold 12 monthly board meeting, March 2006 through February 2007. Linda Malawy seconded the motion, which passed unanimously. Rich Crowley signed the contract. Meeting times specified are Fridays from 7:15 P.M. to 10:00 P.M. Total cost is \$525.

Chicago Wilderness: The CHS received a letter from Chicago Wilderness seeking a donation. Mike Dloogatch moved to donate \$50 to Chicago Wilderness for 2006. Betsy Davis seconded the motion. The motion was passed unanimously.

Membership Survey: Deb Krohn distributed a summary of results of the surveys that were filled out and returned at the January meeting.

Short presentations: Deb Krohn will give a short preview of Salamander Safari for the February general meeting. Jason Hood suggested that Cindy Rampacek remind members in her monthly emails to bring amphibians to the February general meeting. Rich Crowley mentioned that he can do a short presentation on transporting reptiles.

New Business

Shedd Aquarium: Rich Crowley, Mike Dloogatch, Linda Malawy and Steve Sullivan will meet with personnel at the Shedd Aquarium February 13 to see what the CHS can do to help them with their upcoming exhibit.

Roundtable

Deb Krohn thanked Mike Dloogatch and Rich Crowley for all of their help.

Marybeth Trilling has joined the Chicago Turtle Club and has volunteered to be a liaison for the two organizations.

Mike Dloogatch mentioned the Michigan Herp Symposium and suggested that it would be nice to have a large delegation there from the CHS.

The meeting was adjourned at 9:28 P.M.

Respectfully submitted by Zorina Banas, Recording Secretary.



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For sale: rats and mice—pinkies, fuzzies and adults. Quantity discounts. Please send a SASE for pricelist or call Bill Brant, *THE GOURMET RODENT*, 6115 SW 137th Avenue, Archer FL 32618, (352) 495-9024, E-mail: GrmtRodent@aol.com.

For sale: from **The Mouse Factory**, producing superior quality, frozen feeder mice and rats. We feed our colony a nutritionally balanced diet of rodent chow, formulated especially for us, and four types of natural whole grains and seeds. Mice starting from: pinks, \$.17 each; fuzzies, \$.24 each; hoppers, \$.30 each; weanling, \$.42; adult, \$.48. Rats: starting with pinks at \$.45 each, to XL at \$1.80 each. Discount prices available. We accept Visa, MC, Discover or money orders. PO Box 85, Alpine TX 79831. Call **toll-free** at (800) 720-0076 or visit our website: < <http://www.themousefactory.com> > .

For sale: **high quality frozen feeders**. Over a decade of production and supply. Seven sizes of mice available: small newborn pinks up to jumbo adults. Prices start at \$25 per 100. Feeders are separate in the resealable bag, not frozen together. Low shipping rates. Free price list. Kelly Haller, 4236 SE 25th Street, Topeka KS 66605, (913) 234-3358 evenings and weekends.

For sale: books. Australian herp publications. *Venomous Snakes of Australia*—26 × 19" color poster with drawings of 16 species, description, habits, habitat and microhabitat, sent folded, \$7; "Bluetongue Lizards," 16-page article on the 6 species of Australian *Tiliqua*; includes the story of the rediscovery of the pygmy bluetongue, many excellent color photos, range maps, in the July-Sept. 1999 issue of *Australian Geographic* which also contains an article on the calicivirus, \$14; *Snakes & Lizards of Australia* by David McPhee, 1963, 125 pp., b&w photos, small, pocketbook-size, spine scuffed and some pages wrinkled, softbound, \$26. Postage \$2.50 for orders under \$25, free for orders of \$25 or more. William R. Turner, 7395 S Downing Circle W, Littleton, CO 80122, (303) 795-5128, e-mail: toursbyturner@aol.com.

For sale: many aquariums from 10 to 75 gallons, call for prices, (708) 799-6697.

Herp Tours: Why pay more? Travel with the International Fauna Society, a 501 (c)3 not-for-profit organization, and experience the Costa Rican rainforest! Stay at the beautiful Esquinas Rainforest Lodge in the untouched herpetological paradise that is Piedras Blancas National Park. Meet new friends, relax in the naturally-filtered swimming pool or in the lush, fauna-filled tropical garden. Discounts for IFS and Chicago Herp Society members. For details, visit The International Fauna Society website at www.faunasociety.org or E-mail: info@faunasociety.org.

Herp tours: Adventure trips to **Madagascar**! Journey somewhere truly unique to seek and photograph nature on the world's least-studied mini-continent. For maximum herp fun and discovery, join Bill Love as we go where few people will ever venture in their lives. Let his experience assure a comfortable tour finding the most colorful and bizarre species on the planet! Get all the details at Blue Chameleon Ventures' comprehensive new website: < <http://www.bluechameleon.org> > , E-mail: bill@bluechameleon.org, or call (239) 728-2390.

Herp tours: The beautiful Amazon! Costa Rica from Atlantic to Pacific! Esquinas Rainforest Lodge, the Osa Peninsula, Santa Rosa National Park, and a host of other great places to find herps and relax. Remember, you get what you pay for, so go with the best! GreenTracks, Inc. offers the finest from wildlife tours to adventure travel, led by internationally acclaimed herpers and naturalists. Visit our website < <http://www.greentracks.com> > or call (800) 892-1035, e-mail: info@greentracks.com

Internship: The Kentucky Reptile Zoo, a nonprofit organization, seeks student interns for the 2006 season. The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will *not* be involved in the handling of any venomous species. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. The intern will be required to work both Saturday and Sunday, with days off during the week. Students majoring in the biological or natural sciences are preferred. Interns are required to be either college students or recent graduates. Former interns have arranged for academic credit with their institutions. Benefits include experience with one of the most extensive and diverse collection of snakes in the U.S., housing and \$55/week to cover expenses. Interns have been successful in finding zookeeper positions: over 95% hire rate! Personal transportation is recommended. A valid driver's license is required. Starting dates are flexible, but a minimum of 3 months covering summer (June– August), or fall (September– November) is required. Deadlines are April 1 for summer and July 1 for fall. To apply send a cover letter, resume, transcript, and at least 2 (preferably 3) references to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 200 L&E Railroad, Slade KY 40376. Or E-mail: kyreptil@pop.mis.net.

Reptile show: Wisconsin Reptile Breeders' Show and Sale, Saturday, April 22, 10 A.M. to 4 P.M., 1011 Nichols Road, Monona, Wisconsin. Captive-bred only. \$4 admission, \$2 under 12. Info: aor@chorus.net or (608) 238-2891.

Virtual Museum of Natural History at www.curator.org: Free quality information on animals—emphasis on herps—plus expedition reports, book reviews and links to solid information. Always open, always free.

Wanted: I'm looking for my soulmate. I want to settle down to a family before it is too late. But I have this problem. . . . When we get into hobbies and interests: old popular records, jazz and show tunes, and antique electronics are fine, but when I mention turtles, "What, are you crazy?" So maybe this is a better place to look. Please don't try to separate me from my turtles—at least not most of them. If interested, please drop a line to Ellis Jones, 1000 Dell, Northbrook IL 60062, telling a bit about yourself and giving a phone number.

Line ads in this publication are run free for CHS members — \$2 per line for nonmembers. Any ad may be refused at the discretion of the Editor. Submit ads to: Michael Dloogatch, 6048 N. Lawndale Avenue, Chicago IL 60659, (773) 588-0728 evening telephone, (312) 782-2868 fax, E-mail: MADadder0@aol.com.

News and Announcements

2006 CHS GRANT RECIPIENTS

The CHS Grants Committee has chosen the CHS grant recipients for 2006. The committee consisted of Michael Dloogatch, Linda Malawy, Amy Sullivan and Steve Sullivan. This year we received 18 applications, as usual far exceeding the number of grants that could be awarded based on available funds. After a difficult decision process, six grants were awarded, in varying amounts, as follows:

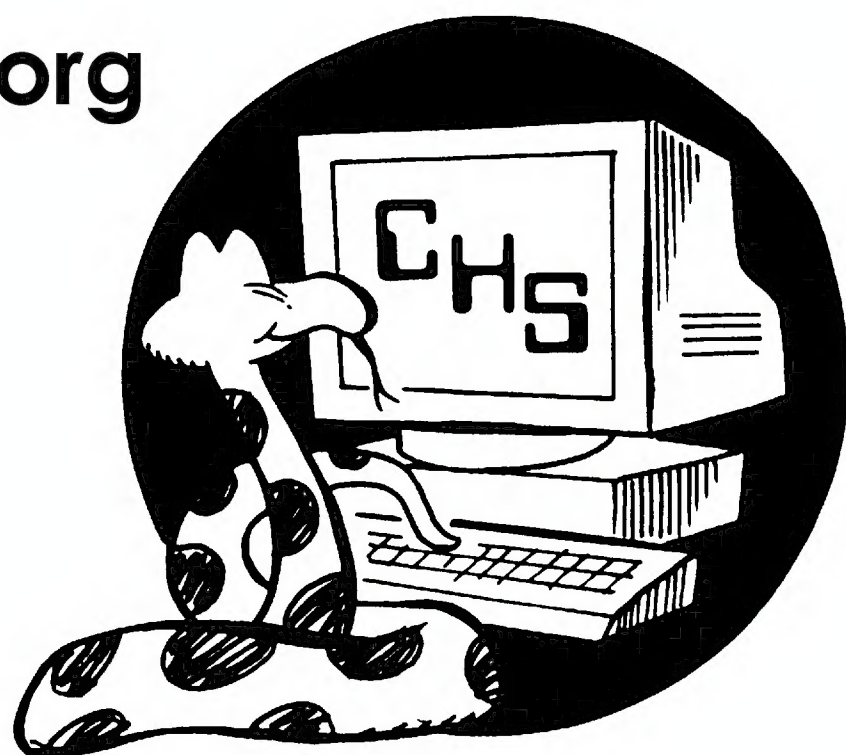
- Philip A. Cochran, Biology Department, Saint Mary's University. "Monitoring Snake Hibernacula in Southeastern Minnesota," \$275.
- Bradley J. Cosentino, Program in Ecology and Evolutionary Biology, University of Illinois. "Dispersal and Population Structure of Pond-breeding Amphibians in a Fragmented Landscape," \$300.
- Ryan McCleary, Department of Zoology, University of Florida. "Effects of the Accessory Venom Gland on Venom Composition of the Florida Cottonmouth, *Agkistrodon piscivorus conanti*," \$455.
- Julie M. Ray, Department of Biological Sciences, Old Dominion University. "Effects of Amphibian Decline on the Trophic Ecology of Mollusk-eating Snakes," \$480.
- S. Alexandra Siess, 1009 N. Kensington St., No. 2, Arlington, VA 22205-2337. "The Spotted Turtles of Aberdeen Proving Ground in Maryland from the 1970s to Today," \$250.
- Zachary R. Stahlschmidt, School of Life Sciences, Arizona State University. "Assessing the Physiological Implications of Egg-brooding Behavior in Pythons," \$500.

Next time you surf the WorldWide Web, crawl, run, slither, slide, jump, or hop over to the CHS web site!

www.chicagoherp.org

You'll find:

- Announcements
- CHS animal adoption service
- CHS events calendar & information
- Herp news
- Herp links
- Meeting/guest speaker information
- Photos of Illinois amphibians & reptiles
- Much, much more!



Chicagoherp.org is accepting applications for banner advertisements or links from herpetoculturists and manufacturers of herp-related products. Visit the site and contact the webmaster for details on how you can sponsor CHS!

Volunteer Opportunities with *Frogs: A Chorus of Colors*

May 31, 2006 – January 6, 2007

The Volunteer Office of the Museum of Science and Industry is in the process of recruiting six to eight volunteers to assist a museum staff member with the overall maintenance of the poison dart frog vivarium, which is an added component to the exhibition *Frogs: A Chorus of Colors*. Duties assigned to this role will include the following:

- Daily feeding of each individual frog (50–75 frogs) within the poison dart frog vivarium
- Daily monitoring of the health of each individual frog
- Daily maintenance of the vivarium including monitoring of water quality, temperature, humidity and vegetation
- Daily cleaning of interior side of vivarium glass walls
- Preparation and maintenance of frog food: fruit fly cultures and cricket populations
- Supervision of exhibit volunteers that will assist in care and maintenance of the vivarium

A possibility does exist for us to utilize CHS members to assist in training volunteer facilitators to serve in the exhibition. Also, we may be interested in recruiting CHS members to facilitate throughout the exhibit.

For more information on volunteering with this exhibition contact:

Matt Porth

Volunteer Resources Coordinator

The Museum of Science and Industry

773.753.1382

matt.porth@msichicago.org

All MSI Volunteers receive the following perks:

- Free admission to the Museum and the Omnimax Theater
- Free parking in MSI's modern, secure underground structure
- Complimentary passes for family and guests (after 12 hours of total volunteer service)
 - A 20% discount at MSI restaurants and stores
 - FREE ADMISSION to other Chicago cultural institutions
 - FREE ADMISSION to many cultural institutions worldwide
 - Plus many more outstanding perks and rewards

www.mischicago.org

UPCOMING MEETINGS

The next meeting of the Chicago Herpetological Society will be held at 7:30 P.M., Wednesday, March 29, at the Peggy Notebaert Nature Museum, Cannon Drive and Fullerton Parkway, in Chicago. **Thomas Eimermacher**, a graduate student in biology at Southeastern Louisiana University, will present "Swimming with Cobras," an account of an expedition he led to study Storm's water cobra, *Boulengerina annulata stormsi*, which inhabits Lake Tanganyika in western Tanzania.

At the April 26 meeting, **Dr. Pieter Johnson**, of the Center for Limnology, University of Wisconsin, will report to us on the results of his research into the causes of amphibian malformations. After some detective work worthy of CSI, Pieter has come up with a convincing explanation for this "plague of frogs."

The regular monthly meetings of the Chicago Herpetological Society take place at Chicago's newest museum — the **Peggy Notebaert Nature Museum**. This beautiful new building is at Fullerton Parkway and Cannon Drive, directly across Fullerton from the Lincoln Park Zoo. Meetings are held the last Wednesday of each month, from 7:30 P.M. through 9:30 P.M. Parking is free on Cannon Drive. A plethora of CTA buses stop nearby.

Board of Directors Meeting

Are you interested in how the decisions are made that determine how the Chicago Herpetological Society runs? And would you like to have input into those decisions? If so, mark your calendar for the April 14 board meeting, to be held at the North Park Village Administration Building, 5801 North Pulaski Road, Chicago. To get there take the Edens Expressway, I-94, and exit at Peterson eastbound. Go a mile east to Pulaski, turn right and go south to the first traffic light. Turn left at the light into the North Park Village complex. At the entrance is a stop sign and a guardhouse. When you come to a second stop sign, the administration building is the large building ahead and to your left. There is a free parking lot to the left and behind the building.

The Chicago Turtle Club

The monthly meetings of the Chicago Turtle Club are informal; questions, children and animals are welcome. Meetings normally take place at the North Park Village Nature Center, 5801 N. Pulaski, in Chicago. Parking is free. For more info call Lisa Koester, (773) 508-0034, or visit the CTC website: <http://www.geocities.com/~chicagoturtle>.

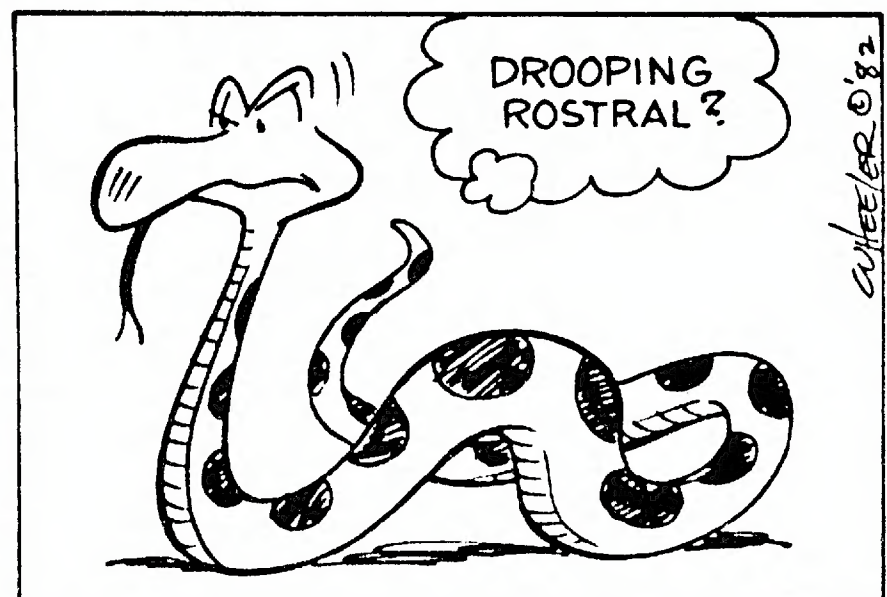
2006 SALAMANDER SAFARI

This year, the annual CHS Salamander Safari will be held on Saturday, March 25, 10 A.M. – 3 P.M., beginning at the Plum Creek Nature Center at Goodenow Grove Forest Preserve in Will County. Goodenow Grove is south of Crete, Illinois, 1¼ miles east of the intersection of Route 1 and Route 394 on Goodenow Road. If you need directions to get to this area, call Deb Krohn at the nature center, (708) 946-2216. From Plum Creek we will drive to other Forest Preserve District of Will County sites to search for amphibians. Species found or heard calling in previous inventories include spotted salamanders, blue-spotted salamanders, gray treefrogs, spring peepers, chorus frogs, bullfrogs, green frogs, and northern leopard frogs. Species not yet found but possibly occurring (or occurring at preserves nearby) include newts and wood frogs. As in past safaris, CHS members are encouraged to bring interesting amphibians from their personal collections for photography and display purposes. Coffee, juice and donuts will be provided, and a good time will be had by all!

THE ADVENTURES OF SPOT

Cartoonus herpetologicus chicaoensis
COMMON NAME: SPOT

- HABITS AND HABITAT: EMERGES ONCE EVERY MONTH. TYPE SPECIMEN CAN BE OBSERVED BY MEMBERS OF THE C.H.S. AMONG THE NEWS AND INFORMATIVE ARTICLES OF THE C.H.S. NEWSLETTER. VENOMOUS ONLY ON OCCASION. BITE IS NEVER SERIOUS, ONLY HURTS WHEN YOU LAUGH.
- AVERAGE LENGTH: LONG ENOUGH FOR ANY SITUATION.
- HEAD: DISTORTED, SILLY LOOKING, PUFFY CHEEKS, LARGE DROOPING, ROSTRAL, BIG EYES, ROUND PUPILS.
- BODY: SLIM TO FAT (DEPENDING ON SITUATION) PATTERN CONSISTS OF 10 TO 20 SCRIBBLY BLACK SPOTS ON A WHITE GROUND COLOR. (OCCASIONALLY OCCURS IN A CHARTREUSE COLOR PHASE.)
- DIET: PREFERS CHOCOLATE COVERED PINKIES.



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